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EDITORIAL NOTES

LEAD CUM PUSH

IN matters which call for concerted action the undertakings which comprise the Gas Industry always welcome a lead. In the absence of a lead, they are not averse to a push. In fact, in many respects one half of the Industry considers that the other half is constantly in need of pushing; but that is by the way. In the matter of fuel economy mindedness in general, progress has been made by the whole nation, and in particular the Industry has been well served by the B.C.G.A. in the matter of liaison with the national effort aimed at fuel saving at the consumers' end. Attention, too, has been given within the feasible limits to economies in industrial gas consumption, but there has been no discernible concerted drive for economies in gas manufacture. We do not mean that no such economies have been effected; clearly the efficient works will have concentrated on them long ago for their own sakes, apart from patriotic motives. But we are able to-day to give advance information of a lead which is coming in the very near future, which will be combined, if necessary, with just the amount of push required to ensure that there shall be no laggards. Quite frankly, we have been put in possession of this information in order to give all gas undertakings an opportunity to look around and see what is likely to be required of them, so that the scheme, when it is launched, may get up speed with as little delay as possible.

The Consultative Committee appointed by the Directorate of Gas Supply, whose formation and constitution we announced a fortnight ago, has met under the chairmanship of Dr. E. W. Smith, and not only explored the position, but formulated a plan for meeting it. Actually, on the known facts and available statistics, exploration was easy. What is satisfactory is that, with the directness which is characteristic of the Chairman, and with a very proper realization of the urgency of the matter, no time has been wasted in long discussion of ways and means or of the tender susceptibilities of the "difficult" ones.

To ensure that all practical means shall be adopted to reduce the Industry's requirements of coal and oil, without interfering with gas supplies, it is proposed that a campaign of advice and technical assistance shall be operated through district committees or panels similar to that which has been working so successfully in the Midlands. Very shortly every gas undertaking will receive a letter containing relevant technical bulletins covering the various types of plant, and a short questionnaire on which will be based consideration of what assistance could be given in each individual case by the district panel or the Gas Directorate. We emphasize the word "short," understanding that the number of questions will actually be very low in the single figure range.

By the time this issue of the "JOURNAL" is in print, we believe that the whole position will have been explained to representatives of the Districts at a meeting called by the Institution. For it is the policy of the Directorate to implement this campaign as far as possible through the national technical body of the Industry, and at least in close co-operation with it; but obviously, though working through the Institution and the panels, the Directorate must retain the ultimate responsibility, since it alone has the actual authority to exact information and to enforce action in recalcitrant cases. Once the campaign is satisfactorily launched, it is hoped that its actual direction will be able to be handed over to the Institution. The intention is that the panels shall be directly responsible to the respective District Associations, but they will be asked to carry out their functions with respect to fuel economy at the direction of the Ministry of Fuel. It is hoped also to obtain the full co-operation of gas plant contractors, and so utilize the vast experience of their operating staffs which have such wide contacts throughout the country. Undoubtedly the S.B.G.I., if kept fully informed of the Consultative Committee's precise aims, will prove a most efficient channel of communication in this sphere.

It is scarcely worth blinking the fact that there will be heartburnings connected with the formation of the panels, so it may as well be faced right away with a fervent appeal for tact and common sense in handling it. It will clearly be impossible to select the personnel of the panels to satisfy everybody, and also there will always be a few who resent the inspection of their works and the investigation of their working by a brother engineer. As regards the former objection, the panels will have to be formed as the basis of the whole scheme; therefore, failing local agreement, it can be taken that the Directorate will be prepared to make final selections. In the matter of the inspections, we can only suggest that they be regarded as friendly visits by somebody who is prepared to help in the common cause, and with heartfelt thankfulness that the visitor is not clad in uniform with a firing squad at his elbow, as might well be the case in other lands.

TECHNICAL TARGETS

SUCH in general outline is the scheme devised for the Gas Industry's concentrated drive against any leakage which may still be occurring at the production end. Let us, then, examine some of the points upon which, in the Consultative Committee's opinion, it will be profitable to focus attention. In static systems of carbonization, under reasonably good conditions of control, and assuming no steaming, it is considered that the calorific value of the gas obtained, even after adequate benzole washing, need not fall below 540 B.Th.U. for Durham coals, 525 for South Yorkshires, and 510 for Scottish. We discussed this point in some detail, with particular reference to horizontal retorts, in our columns on Sept. 23, but it is worth repeating that some undertakings with horizontals are making gas at a calorific value as low as 400, while 450 is not uncommon. Records show that in most cases the lower the C.V. the lower the thermal yield, and the tuning up of such plants would appear to be a profitable field for saving coal. There are also many works where carburetted water gas plants are used in conjunction with static methods of carbonization in which the straight coal gas is not of as high calorific value as it might be. Consequently more oil is required than should be necessary to maintain the declared C.V., and here is a chance to effect saving in that precious commodity also.

Turning to continuous verticals with steaming, which to-day account for more than half of the Industry's output, it may be taken that declared calorific values average 450 B.Th.U. after benzole washing. If inerts in the gas are excessive, then there is a corresponding decrease in the amount of steaming which can be employed, and consequently a reduction in therms per ton for a given calorific value. This clearly would increase the coal required for carbonization for the same thermal output per day.

Oil, it is believed, is being used inefficiently for a variety of reasons—shortage of labour, over-familiarity with plant, and lack of opportunity of determining the best cracking temperatures owing to variations in sources of supply. But is is known that adverse factors are at work which could be even more simply remedied, and routine attention to sprays, and to their normal function in the process, has already in many cases worked wonders.

Closer attention to purging conditions is also indicated. Perhaps most obviously of all, coke wasted in producers or solid

fuel inefficiently used in boilers is as much a debit in the general account as any other overlooked leakage.

These are to be the first objectives, but it is to be hoped that undertakings will not confine their offensive to any limited points, tightening up their working in every single direction, seeking the assistance of the panels wherever they suspect any weakness in their own routine. The Committee are agreed that for the time being undertakings which in their attempts to tune up their carbonizing practice inevitably find themselves making a coal gas of a calorific value above that they have declared shall not be compelled to re-declare their calorific value at the higher figure, but should dilute with water gas or producer gas to the declared value. However, should undertakings feel that an application for an alteration would be justified as a result of experience, they would certainly be encouraged to take the necessary action. And care will be exercised by the Committee in the campaign that no action of theirs shall in any way cut across benzole washing operations.

As a general guide, the Committee have agreed that excessive inerts are an indication of bad carbonizing practice; in other words, that the efficiency of straight carbonization with or without steaming can be broadly gauged by the percentage of inerts in the gas produced. Accordingly, a maximum of 10%, after purification, of nitrogen, carbon dioxide, and oxygen has been set as a target. It is suggested that, where the declared calorific value is ultimately found to be below that which can readily be obtained as a result of economy practice, a form of blending should be adopted either in the shape of blue water gas, or by means of producer gas for which the plant can be obtained "off the peg." In the latter case the percentage of inerts may well unavoidably exceed the target figure, but this in any case is visualized only as a general indication of carbonizing conditions and the degree of air used in purification. Unsatisfactory operation of blue water gas plant would, of course, also adversely affect the inerts with a consequential reduction of calorific value. This in its turn would reduce the number of therms that could be introduced into the gas for any given dilution required.

The objective, in fact, is to tighten up practice so as to exact the immediate maximum efficiency from existing plants, and no one will doubt that there is wide scope in the Industry for such activities. As we have explained, delegates from the District Associations will by now have been put in possession of full details at a meeting called by the Institution. This article will have served its purpose if by one day it can advance concentration in however few quarters on economy measures which before long may become obligatory. We are certain that the Industry as a whole will heartily welcome the lead. We trust that no great part of it will require the push which we have suggested is in reserve in the background.

COMMUNITY OF INTEREST

A YEAR ago Sir David Milne-Watson was installed as President of the Fuel Luncheon Club, and on that occasion he addressed the members on "Fuel and the Future." His Address was published in the "JOURNAL" of Oct. 29, 1941, and we may recall that at the time Sir David maintained that if measures were not taken to prevent it, the various fuel interests would at the end of the war revert, if not to the state of affairs which prevailed before the war, at least to something like it. Therefore, he argued, the first essentials appeared to be that production, distribution, and utilization of all fuels (including electricity, of course) should be regarded as a single problem—that the ultimate aim must be a comprehensive Fuel Scheme, each fuel being used in the sphere best fitted for it, with the interests of the public as the basic consideration. Towards this end Sir David advocated that the problem should become the sole responsibility of a Minister of the Crown—that in the national interest a Ministry of Fuel should be formed. In point of fact it was a logical development which had been mooted over many years, but it took the shaking-up of war to establish such a Ministry, which came into being amid world turmoil in June of this year, with Major Lloyd George as the responsible Minister.

Last week Sir David was re-elected President of the Club, which is representative of all the fuel interests, and in his Address, which will be found on p. 158, it was natural that he should express his gratification at the establishment of the Ministry of Fuel and should expand somewhat his previous views on post-war co-operation of the fuel industries, whose future he linked up with the consumer and the nation. The premises of his observations are all-important—first, that after the war we shall be a poorer country financially; secondly, that no member of the public will want to be dragooned after the war, or will stand for dragooning. In other words, whatever the contents of the consumer's pocket, he must be allowed, as far as is possible and reasonable, having the nation's welfare as the basic consideration, freedom of choice of the fuel he shall use to provide comfort.

We do not think we shall see, post-war, an all-coal policy, an all-electricity policy, or an all-gas policy. If people use more gas, the use of which we feel sure will expand very greatly, it will, we hope, be on the merits of gas as a fuel derived from coal, and not because no electricity is allowed on the premises or because raw coal is taboo. The merits of gas will have to be appreciated of course, first in responsible quarters and then in the homes of the individual consumer, but the case of the Gas Industry is strong enough to stand and progress with other fuels in the field. Smokelessness is obviously desirable and should be planned for and encouraged. There are smokeless fuels, solid and gaseous, and intangible in the form of electricity, which can be used instead of smoke-producing solid fuel. A combination of gas and coke is no more expensive to the individual consumer than raw coal. For a given sum of money, a consumer cannot gain more comfort by spending it on coal rather than on gas and coke—a fact which will be eventually recognized to the nation's advantage. The fact will be recognized, we hope, as it should be recognized, on the grounds of merit and not on the grounds of compulsion. To fit up a house so as to be able to use, where desired, smokeless fuel (solid or gaseous) or electricity may involve some additional expense, but the notion of a Government or a pettifogging local authority compelling anybody to live in a house specifically designed for coke, or gas, or electricity, is distasteful. We do not regard this as a negative view, or any wooing of the *status quo*. The tendency is towards smokelessness, through a knowledge of the facts and through education. The two major products of the Gas Industry will go forward on their merits without being rammed by force into the homes and hearths of the people. And there is obviously a growing field for electricity.

In our opinion, what is needed is, first, acceptance of the principle that coal should be pre-treated before use; secondly, that there should be a balanced view of the purposes to which the products of treatment—gas, electricity, and solid smokeless fuel—are best suited economically, nationally and individually. Looking to the future, we agree with Sir David in his contention that gas men and electricians will not give up research because they are not shouting at and decrying each other all the time. Competition has its uses, but, from the national point of view, an element of control may be warranted. Surely, he said, we may conceive of the Ministry of Fuel taking an active part as a guiding influence in this most important department of national life. Properly considered, we are not warring sections seeking to secure our existence at the expense of each other, but rather we are complementary parts of a single industry on which the nation as a whole will vitally depend as never before in the difficult years that lie ahead.

Coal Supplies

The Ministry of Fuel and Power announces that the maximum quantity of coal (including briquettes and small anthracite) which may be supplied without licence to any controlled premises during the two months November–December is: 12 cwt. in the Eastern, London, South-Eastern, Southern, and South-Western Regions; 15 cwt. in the Northern, North Midland, Midland, North-Eastern, North-Western, Welsh, and Scottish Regions. If these quantities would raise the stock

above a ton and a half only sufficient to bring the stock to that total may be obtained. Coke of all sizes and anthracite of sizes exceeding 1¾ in. may be obtained without licence so long as the total stock of these two fuels is not raised above four tons. It is an offence against the Defence Regulations to exceed these quantities without licence from the local fuel overseer. Consumers are again recommended to take coke whenever possible in substitution for coal. The term controlled premises is used to describe non-industrial premises and industrial premises using not more than 100 tons of coal a year.

Control of Tar

The Minister of Fuel and Power has made the Control of Coal Tar (No. 2) Order, 1942, under Regulation 55 of the Defence (General) Regulations, 1939. The Order came into force on Nov. 1 and supersedes the Control of Coal Tar Order, 1942, S.R. & O., 1942, No. 732. The new Order is similar in substance, but in addition to minor alterations in definition new provisions have been included. The treatment, use, and blending of coal tar products by distillers and importers will be subject to licence, and an article has been incorporated empowering the seizure and sale of coal tar and coal tar products in the event of suspected contravention of the Order. The application of the Order will extend to Northern Ireland. Applications for licences should be made to the Coal Tar Controller, Quebec House, Quebec Street, Leeds, 1. Copies of the Order (S.R. & O., 1942, No. 2136) may be purchased through any bookseller or directly from H.M. Stationery Office.

1942 "Journal" Directory

Page 56. PRESTON. A. K. Collinge, *E.*, *vice* S. Tagg, resigned.
„ 68. SWANSEA. E. Ablett, *E. M. & S.*, *vice* W. H. Johns, retired.
„ 80. ARBROATH. C. W. Dalton, *E. & M.*, *vice* D. Morton, resigned.
„ 94. STIRLING. W. M. Gledhill, *E. & M.*, *vice* A. Cuthbert, deceased.

Personal

Mrs. ISABEL FLAVEL has been appointed Chairman of Messrs. Sidney Flavel & Co., Ltd., of Leamington Spa, and Mr. SIDNEY W. B. FLAVEL, B.Sc., and Mr. W. ARNOLD JACKSON (General Manager), Joint Managing Directors.

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His many friends in the Industry will regret to know that for health reasons Mr. TOM KEELEY, after representing John Wright & Co., Ltd. (Radiation Ltd.), in the Midlands area for nearly forty years, has retired from active business.

Obituary

George Airth

As briefly announced as we went to press with the "JOURNAL" last week, the death has taken place of Mr. GEORGE AIRTH, who, elected to the Irish Association of Gas Managers in 1900, was President in 1905 and for 27 years acted as Secretary and Treasurer. At the time of his retirement from the Secretaryship in 1936 he was the recipient of a presentation from the Association at its annual dinner held in Dublin, when many tributes were paid to the value of his services, which were always ungrudgingly and modestly offered. His work for the Gas Industry in Ireland was, over the years, very great. Always foremost in championing the cause of gas, he took a leading part in any negotiations with Government Departments and public bodies where the interests of the profession needed a spokesman. On numerous occasions his splendid fighting qualities and wise guidance wrought good for the Industry in general.

Apart from his active business life, Mr. Airth was one of the last survivors of the Dundalk Burns Club, and was widely known in Masonic circles. He had many friends throughout the Gas Industry in Great Britain.

Mr. Airth leaves a widow and two daughters.

Letters to the Editor

I.G.E. Report on Gas Quality

DEAR SIR,—I have read the above report with interest, but must confess that I am amazed at the wide margins of tolerances which are suggested. I have had our records examined and find:

a. Calorific values from day to day are constant within ±0.5%.
b. Specific gravity changes do not exceed ±1.5%.
c. Main pressures do not change more than 3–4 tenths except between midnight and 6 a.m., when they are reduced 5 tenths.

If, from all the facts that the Committee have obtained, they found it necessary to recommend such wide tolerances, I can only say that it is a great reflection on the working of the Gas Industry. To the outsider, it would suggest that the Industry could not guarantee the quality within the lower margin which—from the returns quoted above—shows it to be wrong. I do not think anything should be published which might support such an idea.

In my opinion and also in the opinion of my Chief Chemist, if freedom from official control with its rigid limitations is behind the suggested tolerances, it would be better to have provided a target to aim at, rather than suggest tolerances which can have no meaning to the majority of undertakings.

City of Leeds Gas Department. Oct. 29, 1942.

Yours faithfully,
C. S. SHAPLEY,
Engineer and General Manager.

DEAR SIR,—The report of the I.G.E. Committee of Enquiry on Gas Quality and also the comments appearing in the "JOURNAL" are of importance to all live gas engineers.

The need for maintenance of calorific values, specific gravity, and pressures within the narrowest of practicable limits is most desirable, but there are circumstances whereby the tolerances of ±5%, ±10% and ±1 in. W.G. respectively are definitely justified.

Many gas-works have been required to provide outputs at short notice of such substantially increased quantities that only flexibility of the system would permit this to obtain. I refer particularly to industrial loads.

It is one thing to have progress in a gas undertaking which may mean a 5% increase in annual output whereby all the fine limits necessary for ideal supplies can be taken care of. It is another thing, however, for a gas engineer to take the responsibility of a 15% or 20% increased load at very short notice with the consequent upsets of manufacture and distribution.

To the gas engineers who have so substantially helped Industry under such conditions, I for one will take off my hat for tackling the job in the real British style.

In regard to plant generally, I hope that the old apparent slogan "This will do my time" will be shunned by all gas engineers who have the privilege of advising on the policies for works under their control, but rather well-directed efforts should be made for really adequate carbonizing plants, C.W.G. reserves, substantial washing and purification plant, adequate gasholder capacity, and well-proportioned trunk main systems. These things will surely help to correct many of the shortcomings that exist in regard to inconsistent qualities.

One is inclined to suggest the desirability for a stipulated basic plant reserve, formulated on the size of works, type of area—heavily industrialized or otherwise—to cover contingencies that are likely to arise for such items of increased load, load variation, coal quality variations, and repairs.

In regard to the long letter that appeared in your issue of Oct. 21, it would appear that in Scotland only the gas service pipes to, and carcassing within, older property would appear to be at fault. Of this, although I am not a Scot, "I hae ma doots" all the same. In any case, I am mindful of the old Scottish song—"Flow Gently Sweet Afton."

Yours faithfully,
"MIDLANDER."
Oct. 27, 1942.

Provision of Utility Services in Buildings

In view of the need, in modern buildings, for frequent expansion of the various engineering and utility services, careful forethought in planning for such development during erection has become essential.

Owners of buildings, tenants, architects, and decorators have had ample evidence of the lack of advance planning for services in buildings, where, in order to remedy this deficiency, it has been found necessary to adopt methods that are expensive, inconvenient, and architecturally undesirable. Damage has resulted to walls and floors, finishes, &c., and occupiers have been put to inconvenience.

The extent to which such disadvantages can be avoided depends on the adequacy of the systems incorporated in buildings during construction.

Several years ago, at the request of the R.I.B.A., a Committee of the British Standards Institution was set up to investigate the possibilities of preparing some standard guiding principles for the use of those concerned in the advance planning of services in buildings. Much scepticism was expressed, in the early stages of the work, as to the final outcome of the investigations, but the Committee has expended a great deal of time and patient effort on the problem, and the results of their deliberations are now embodied in B.S. 1043, just published by the British Standards Institution and obtainable from the Publications Department of that Institution, 28, Victoria Street, S.W. 1, price 2s. (2s. 3d. post free).

The Code has been submitted to the recently established Code of Practices Committee of the Ministry of Works and Planning, and will in due course probably form one of a series of Codes, or part of a comprehensive Code of building practice likely to be produced as a result of that Committee's activities.

The fact that goods made of raw materials in short supply owing to war conditions are advertised in the "Journal" should not be taken as an indication that they are necessarily available for export.

THE NATION, THE CONSUMER, AND THE FUEL INDUSTRIES*

By Sir DAVID MILNE-WATSON, Bart., D.L., LL.D.

WHEN I had the honour of addressing you last year, I advocated the establishment of a Ministry of Fuel. That Ministry has now come into existence and Major Lloyd George has been appointed the Minister, and in my opinion it is a good appointment. My proposals were criticized by certain writers in the technical Press. I was represented as one connected with a dying Industry, or at least with one that ought to die even if it showed no signs of doing so. In other words, I was trying to keep an old Industry going by curbing a young and enterprising one which could do everything from moving mountains to curling hair, and saw the Ministry of Fuel as a kind of nurse to preserve the life of the particular branch of the fuel industry with which I was connected.

Well, words hurt no one, and I did not feel deeply aggrieved. But surely there can be no doubt that a Ministry of Fuel is an absolute necessity. It could not be right that this most important group of public services should be dealt with by an overburdened Minister who could only regard fuel as of subsidiary interest—only one of many important duties. In any case the fuel industries were already under a single Ministry—namely, the Board of Trade—and no one can possibly imagine the relaxation of control. Is it not better to be under a Minister whose whole time is available to give the co-ordination of the fuel industries the necessary attention rather than being grouped together with some twenty strange companions ranging from Overseas Credit and Export Trade to Standards and Bankruptcy ?

This country after the war, it is generally agreed, will be a poorer country and it will be neecssary to act accordingly. The problems of the future, it seems to me,may well be discussed under three heads: The Nation; the Consumer; the Fuel Industries themselves.

First let us consider the national point of view. We have used up our wealth; and if we are going to maintain our position generally and even approximately maintain our accustomed standard of living we must make the most of our natural resources. Coal is the greatest asset to this country and the basis of all our wealth and prosperity. Our coal must be jealously guarded. In the spacious days of the nineteenth century and afterwards this certainly was not done. In the future every Government will have to see that coal, which is a wasting asset, is conserved. We must not follow the policy which has ruined many a country, such as cutting down its forests and exhausting its soil. We must make the most of coal, and it will therefore be the duty of future Governments to see that the coal reserves of the nation are protected and not squandered. As Dr. E. W. Smith said recently, we should determine which forms of fuel are best for particular purposes though not necessarily the cheapest, and how these forms of fuel should be used.

Turning now to the consumer, here we come to a difficult problem, for none of us wants to be dragooned after the war. The consumer, whether an industrial concern or a mere citizen, would like to claim the right to choose what he wants to use. In other words he thinks he should have freedom of choice. This is a view to which, naturally, I heartily subscribe. There are, however, difficulties in the way, especially when we consider that the large devastated areas will have to be planned and rebuilt. Which means that some authority will have to decide with what the houses and buildings shall be fitted up.

Can we afford to give freedom of choice ? There are some, no doubt, who will say that there is one fuel which could do everything—lighting, heating, and cooking—but their view is not likely to find acceptance generally. We do not know yet who is to be responsible for post-war housing, whether it will be a Government Department or a Local Authority. But in any case someone must decide, and it is most important that the wishes of the consumer should be respected as far as possible, and that he should not be forced to live in a house designed by some authority who wishes to make everything uniform. The problem will be to give freedom of choice without incurring too great expense.

To fit up a house so as to be able to use where desired coal, gas, or electricity may involve some additional expense in the first instance, but, in the long run, may be economical—especially if consideration is given to the vital question of national efficiency. And surely efficiency will be the dominating factor in the future.

Coming now to the fuel industries themselves, what is to be their attitude in post-war days ? I am not proposing to deal in this short talk with oil, beyond saying that oil will be of the greatest importance in the future, as in the past, but it is not a national British product and has to be imported from abroad. Therefore, it has to be paid for by our exports and, in any case, will be a rival to a large extent to coal, gas, and electricity. Generally speaking, coal is the basis of the gas and electricity industries. It will probably always be consumed, to a certain extent, in its raw form, but the tendency will grow in future to turn coal into gas or electricity. Much research has been done in regard to coal, and it is vitally important that this should be continued. In the future it may well be, however, that this research will be united with the research work done by the gas and electricity industries. It is really a problem of how to make the most of our national fuel—coal.

Pretreatment of coal is the basis of the Gas Industry and the Coke Oven Industry. I suppose everyone would admit that as coal contains so many valuable by-products, which are wasted when coal is burned raw, coal ought to be pretreated before burned. I need not elaborate the advantages—e.g., smokeless towns, an ideal which may never be completely attained but of which sight must not be lost. If the Gas Industry were destroyed it would be necessary for the State to start a new Gas Industry. Everyone will agree that electricity has practically a monopoly in many ways, such as lighting and power; but this should not mean that it should try to crush out the other industries from fields where they can, and do, give efficient service.

Hitherto the attitude of our fuel industries has been unbridled competition. As one belonging to the Gas Industry I am not complaining. It was quite evident that when electricity appeared on the scene it had to fight for a place and it could never have got where it has without a struggle. Under the stress of war there has been a truce between the various branches of the fuel industry, and no one surely wants to see a reversion to a wild scramble for business after the war. It is sometimes alleged that without competition progress would die. That is not the truth. Electricians and gas men will not give up research because they are not shouting at and decrying each other all the time. Competition has its uses, but it ought to be under control from the national point of view.

Surely we may conceive of the Ministry of Fuel taking an active part as a guiding influence in this most important department of national life; but it is a new Ministry which must learn by experience and, therefore, it seems to me that it is the joint responsibility of those who are engaged in the fuel industry to co-operate and pool our experiences for the benefit of the new Ministry and thus help it to avoid mistakes. Properly considered we are not warring sections seeking to secure our existence at the expense of each other, but rather we are complementary parts of a single industry on which the natiod as a whole will vitally depend as never before in the difficult years that lie ahead.

* Address as President of the Fuel Luncheon Club, Oct. 28.

B.C.G.A. Activities

By arrangement with the War Office the Association is supplying the Army Educational Scheme with films for the troops. The instructional value of the B.C.G.A. films is so much appreciated that eight of them have been chosen and are being supplied to each of the Army Commands. In addition lectures and lantern-slides on gas manufacture and by-products recovery are being sent out.

The B.C.G.A. found a new partner recently in the Federation of Bone Users. Together they set forth to educate the public in saving bones pleasantly by drying them off in odd corners of the (we hope, well-filled) gas oven or of leaving them in to gather the residual heat after several usings of the oven. In this way the bone will not be an evil-smelling member of the household salvage. As a result of this co-operation a gas cooker to demonstrate the method was used in a Government film on bones salvage.

The difficulty of making wartime showroom windows interesting by gas alone is being overcome excellently by using them for displays of National appeal. The B.C.G.A. has produced a scheme of such displays in conjunction with the Ministries of Food and Aircraft Production, the National War Savings Committee, and the British Red Cross and St. John War Organization. The Ministry of Information is constructing a series of photographic window displays which will be distributed shortly. Undertakings in the smaller towns and country districts should have no difficulty in making their windows a constant source of attraction if they link up with local organizations and offer display space.

Teaching children to read gas meters at school has become a popular turn, and many undertakings have presented instruction charts to local schools and have organized lectures. The B.C.G.A. Studio is producing these charts and has also designed special publicity material for schools in the Ascot and Sunninghill district in connexion with the Windsor Rural District "Tanks for Attack" War Savings Campaign.

The Studio's design for converting a desk into a Home Service Information Bureau should encourage the public to regard their gas showrooms as a centre of information on all home matters, and indeed wherever the Bureaux have been set up they have been well patronized, particularly with requests for advice on fuel economy, cooking, and home laundry.

The Home Service Sheet dealing with fuel economy is having a wide circulation.

STANDARDIZATION OF APPLIANCES

PART I.—DOMESTIC GAS COOKERS

(*Concluded from p. 133*)

Conclusions

Having considered the evidence submitted to it the Committee has reached the following conclusions:

1. There is no general measure of agreement in the Gas Industry in favour of a nationally standardized cooker. It is feared in many quarters that total standardization would impede progress without conferring adequate benefits in return for this risk.
2. It is clear that an essential first requirement in standardization on a national scale must be agreement between gas undertakings on the design and general construction of, and features to be incorporated in, a nationally standardized cooker. The Committee sees no prospect of such agreement being attainable while the structure of the Gas Industry and the diversity of outlook of the component units remain as as present. At the moment no medium exists for the discussion of such matters of common interest to all members of the Gas Industry as the design and construction of domestic gas appliances.
3. There is general agreement on the part of all witnesses that a measure of rationalization is desirable, and that all the parties interested would benefit thereby. While opinions differ as to how far the process of rationalization should be carried, it is significant that the manufacturers of appliances have for some time been considering its practical application to their post-war models.
4. Witnesses favouring a nationally standardized cooker indicated that they did so on the assumption that definite benefit would accrue in respect of (*a*) initial cost, (*b*) simplification and cost of maintenance. The Committee has no evidence enabling it to assess the financial value of *national* as compared with *regional* or *local* standardization.
5. A modern vitreous-enamelled cooker of low price is needed to replace existing black cookers and will be required in large numbers after the war for installation in new property. Initial cost is a very important consideration, but good performance, sound construction, ease of cleaning, and attractive appearance are also essential. Opinions differ as to the range of choice that will be demanded by the prepayment class of consumer as a whole, but it is generally agreed that the great majority of this class will accept the cooker offered to them by the gas undertaking provided it complies with the requirements stated above. It is generally accepted that the small minority who will not accept what is offered them will be prepared to pay an extra price for their own choice of apparatus.
6. It is unanimously accepted that the more expensive cooker should not be standardized, but that rationalization, as far as this is possible, should be applied to it.
7. All witnesses agreed that they would not undertake to accept a standardized cooker without seeing it. The majority desired a range of cookers of the same class from which to choose. Opinions differed considerably on details of design and construction. The significance of these facts cannot be ignored.

Recommendations

A. The Committee makes the following General Recommendations:

1. Steps should be taken to put into effect as soon as possible a policy of rationalization to be applied to all new designs of domestic gas cookers.

With a view to giving effect to this policy—

2. Each manufacturer should make the component parts of his own series of cookers interchangeable to the maximum extent.
3. Each manufacturer should reduce the number of models in current production to a minimum.
4. The number of sizes of all domestic gas cookers should be limited to four, with a limit of three sizes for the lower-priced models normally supplied to prepayment consumers.
5. All gas undertakings should agree not to ask manufacturers to make minor alterations, and all manufacturers should agree not to make any such modifications to their standard series of cookers to suit individual buyers. Alteration of existing models and the introduction of new models should be undertaken only when this is justified by improvements of real merit.

B. The Committee also makes the following Detailed Recommendations:

6. *Hotplates:* The height of the hotplate should be standardized in relation to the other units of kitchen equipment. This should preferably be specified by the Directorate of Post-War Building of the Ministry of Works and Buildings.
7. *Burners:* Not less than three boiling burners should be provided. One burner should be capable of giving a fast speed of boiling (say 3 pints of water in not more than 9 minutes). There should be provided at the back of the hotplate a simmering burner. The gas rate of this should be capable of reduction, conveniently and sufficiently to give a stable flame.
8. *Grill, Grill Tin, and Grid:* The griller should have an effective grilling area of not less than 45 sq. in., and the grill fret should be of heat-resisting steel. Grill tins should be standardized. Means of adjustment of the height of the grid should be provided and its mesh should be small.
9. *Gas Control Taps:* Hotplate taps and safety oven taps should at least be standardized by each maker for his own models. Consideration might usuefully be given to the preparation by the British Standards Institution of a Specification for a standard gas tap to be used on all cookers. Safety taps should be provided on all ovens.
10. *Governors and Fixed Injectors:* A standard gas pressure governor and fixed injectors and air entrainment ports should be used on all cookers to ensure a constant gas-air ratio. The injectors should be provided with a standard thread to facilitate interchangeability. The standardization of injectors should be fully investigated.
11. *Splash Back:* A splash back, preferably fitted with a plate shelf or rack, should be provided, and if a cover is fitted it should have a plate shelf incorporated in it.
12. *Thermostats:* Calibration of setting and notation should be standardized. Numbers, not letters should be used.
13. *Ovens:* Sizes should be specified in terms of effective door opening.
    Linings should be made easily removable to facilitate maintenance.
    Runners: Embossed sides to form runners for shelves are preferable. In two-burner ovens it may be necessary to use separate gates.
    Products outlet: Size should be standardized. The outlet should be designed in such a manner as to prevent choking and wall discoloration.
    Door and Door Latch: Left-hand hanging should be standardized.
    Gas Connexion: The size and height from the floor should be standardized.
    Meat Tins and Cake Trays: These should be standardized.
    Finish: Grey mottled enamel finish should be standardized for the low-priced type of cooker.
    Clearance: Provision should be made for easy cleaning beneath the cooker and for convenient accessibility of the oven. In any case when the oven burners have been alight for two hours the surface temperature of the floor must not exceed 150°F.
14. *Screws, Nuts, and Bolts:* All screws, nuts, and bolts should have standard threads and should be corrosion proof. The number of different sizes used should be kept to a minimum.
15. *Nomenclature:* A standard nomenclature of component parts of cookers should be adopted by all manufacturers. Code numbering of parts should be adopted by each manufacturing firm for its own models.

The Committee finally suggests that the above recommendations be conveyed to the manufacturers of domestic gas cookers and to all gas undertakings, and that both parties be urged to support a policy of rationalization.

F. B. RICHARDS
(Chairman).
DEAN CHANDLER.
R. J. ROGERS.

[An Appendix to the Report gave a list of witnesses.]

The Following Dividends have been declared by Meters, Ltd.: Interim on 5½% Cumulative Preference Stock of 2¾% actual, less tax, for the half-year ended Sept. 30, 1942. Interim on Ordinary Stock of 4% actual, less tax, for the half-year ended Sept. 30, 1942.

A Joint Meeting between the Central Executive Board of the National Gas Council and the Executive Committee of the British Commercial Gas Association will be held at Gas Industry House on Nov. 10 at 2 p.m. The usual monthly meeting of the Central Executive Board of the N.G.C. will be held at the conclusion of the Joint Meeting.

The Institution of Chemical Engineers advise us that application forms and particulars of their 1943 Examinations may be obtained from the Hon. Registrar of the Institution.

A Meeting of the Eastern Counties' Gas Engineers and Managers' Association will be held at Gas Industry House on Nov. 13 at 1.45 p.m., when Mr. T. C. Battersby will give a Paper on "The Installation of a New Plant for the Processing of Coal."

A DOMESTIC BLOCK RATE TARIFF*

By J. CORRIGAN

Engineer and Manager, Brighouse Gas Department.

I HAVE ventured to submit a series of detailed investigations in the experiences of my undertaking during the past ten years in the matter of tariff schemes, in the hope that such observations will be a contribution to the consideration to this vital and basic post-war problem. I propose to confine my observations to results as they affect domestic consumers, as such data, distinct from those referring to specialized and localized industrial gas consumption, are of interest to all and can be interpreted comparably by other undertakings. The tables will, I feel sure, repay careful study, and the whole of the point of the Paper is to present information of actual experience rather than to express opinion on tariff schemes in general.

There have been more views expressed on tariffs during the past 15 years than on any other subject connected with the Gas Industry, and yet the matter still remains one of opinion and upon which there is no national policy. This is, of course, mainly due to the absence of necessary legislation. In the past, tariffs have been viewed entirely as aids for the promotion of sales, but in the future they will need to be incorporated into a scheme of charging so as to provide means whereby a gaseous fuel can be made available to all sections of the public at a cost well within the means of the lower incomed groups, and at the same time giving to the Gas Industry an equitable return on its services charges.

We know that the principal methods of charging for gas for domestic consumers have been flat rate, with or without graduated discounts, step rate, block rate, sliding scale, and two-part tariff. The last, owing to legislation, is offered as an optional tariff, while there may be modifications or combinations of the other main tariffs.

Basic Costs

My Undertaking first considered promotional tariffs in 1927, when, following a carbonizing reconstruction, certain economies had been effected. The annual costs were dissected on the basis of the report of the Gas Charges Committee of the National Gas Council, and alternative two-part and block rate schemes were devised for domestic and industrial consumers. It was then decided to institute an optional four-part tariff for industrial consumers, and to consider tariffs for domestic users at a later date when more experience had been gained.

Accordingly, in 1932 the whole question was reviewed and analysis of annual costs brought up to date. The analysis showed allocation of costs to be:

Service Charges ... 21s. per consumer per annum.
Commodity ,, ... 1s. 8d. per 1,000 cu.ft., or 4d. per therm.

The standard flat rate then charged was 2s. 11d. per 1,000 cu.ft. (7d. per therm). Two-part tariff schemes with a service charge of 6s. per quarter and commodity charge of 1s. 8d. per 1,000 cu.ft. were considered, but as they could only be optional tariffs it was decided to investigate the compulsory block rate scheme.

Previous analyses had shown the classification of consumption groups, and it was decided to set the rates of the first two blocks sufficiently high to allow recovery of the full service charges from consumers using 3,000 cu.ft. per quarter in the following manner:

CONSUMER USING 3,000 CU.FT. PER QR.

Assuming commodity charge of 1s. 8d. per 1,000 cu.ft.

	s.	d.
First 1,000 cu.ft. (5 therms) at 4s. 6d. net per 1,000 = 4s. 6d. – 1s. 8d. =	2	10
Next 2,000 ,, (10 ,,) at 3s. ,, ,, = 6s. – 3s. 4d. =	2	8
Contribution to service charges (per quarter)	5	6

The Compulsory Block Rate Scheme

Not without considerable opposition was the block rate tariff finally put into operation in 1933 in the realization that many anomalies would be found. In such cases experience is the only guide, and it was agreed that the tariff would constantly be reviewed and concessions granted or anomalies removed whenever possible. Many of these proved to be in theory rather than in practice, and as 80% of consumers reached the 3rd block cheap gas rate the scheme proved acceptable to the majority.

An interesting analysis was taken of 331 consumers using less than 5,000 cu.ft. per annum, and who were obviously not paying their proportion to the overhead costs of the undertaking. It was claimed they were the poorer class of consumer and would be penalized the greater.

The analysis showed:

143 using electricity.
156 using small quantity of gas for various reasons, families working, one person in house, partially occupied houses, &c.
32 could not afford to use more gas.

These latter proved to be the only hardship cases.

The block rate scheme as put into operation had many unusual features worthy of consideration:

1. It was compulsory for all domestic consumers but non-domestic users were offered an optional 4-part and later 2-part tariff.
2. The first municipal undertaking to substitute a block rate for a standard flat rate tariff.
3. The quarterly consumptions requirements of the first two blocks were exceedingly small. All in excess of 3,000 cu.ft. per quarter qualified for the cheap rate.
4. The cheap gas rate was immediately made available to 80% of the consumers as distinct from the time lag factor with optional tariff schemes.
5. Gas at 1s. 4½d. per 1,000 cu.ft. (3.25d. per therm) net was offered and was competitive with *all* fuels for *all* domestic purposes.
6. Prepayment meter consumers were also brought into the scheme, and as meters were already set for 16 cu.ft. per penny (5s. 2½d. per 1,000 cu.ft.) rebates according to consumption were readily calculated.
7. The cheap gas rate (3rd block) was less than half the 1st block rate.

Local Conditions

A brief outline of the local conditions in 1933 will assist in visualizing the position:

1. The district is a typical industrial area with a preponderance of low-rated houses.
2. Tables are given showing 86% houses have a rateable value of below £13.
3. The income groups are largely of the industrial types, and one important point to be noted is that the following investigations include a period when acute industrial depression was experienced.
4. There has been no major housing scheme development and building has been limited largely to private enterprise.
5. The Gas Department was badly equipped for showrooms, but in 1937 this defect was remedied by the occupation of showroom premises which are undoubtedly outstanding for a town of its size. The Department has pursued a vigorous sales policy over the whole of the period, publicizing the cheap gas rate, and all sales talk was directed to the cheap rate in a similar manner to the electrical concentration on ½d. per unit without reference to standing charges.
6. The Electricity Department is owned by the Corporation, purchasing its requirements in bulk. It has of late years intensified its sales policy by the usual methods of assisted wiring, rateable value tariff schemes, &c., and tables shown indicate the rate of progress.

TABLE 1.—SCALE OF GAS CHARGES. DOMESTIC CONSUMERS ONLY.

	Flat rate.	Block rate.								
Ordinary meters.	1932.	1933-35.		1935-39.		1939-40.		1940 to date		
Consumption per qr.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.
Any quantity ...	2/11 net	7.0								
First 1,000 cu.ft. (5 therms) ...		5/-	12.0							
Next 2,000 cu.ft. (10 therms)		3/4	8.0							
All in excess of 3,000 cu.ft. 15 therms		1/10½ Less 10%	4.5							
First 2,000 cu.ft. (10 therms)...				4/2	10.0	4/2	10.0	4/9½	11.5	
Next 1,000 cu.ft. (5 therms)				3/4	8.0	3/4	8.0	3/9	9.0	
All in excess of 3,000 cu.ft. (15 therms) ...				1/6 Less 10%	3.6	1/8 Less 5%	4.0	1/10½ Less 5%	4.5	

Meter rents charged for Ordinary Meter Consumers from 1s. per qr. to 3/6d. per qr.

	Flat rate.	Block rate.									
Prepayment Meters.	1932.	1933–35.		1935–36.		1936–39.		1939–40.		1940 to date.	
Consumption per quarter.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.	1,000 therm cu.ft.	d.
Any quantity	3/6	8.4										
First 1,000 cu.ft. (5 therms)		5/-	12.0									
Next 2,000 cu.ft. (10 therms)		3/5¼	8.3									
All in excess of 3,000 cu.ft. (15 therms)		2/1¾	5.15									
First 2,000 cu.ft. (10 therms) ...				4/2	10.0	4/2	10.0	4/4½	10.5	5/-	12.0	
Next 1,000 cu.ft. (5 therms) ...				3/6	8.4	3/6	8.4	3/8	8.8	4/-	9.6	
All in excess of 3,000 cu.ft. (15 therms)				1/10	4.4	1/4½	3.25	1/7	3.8	1/9½	4.3	

All the above prices are net. No Meter Rents.

Meters are for 16 cu.ft. per penny. Rebates according to consumption.

NOTES.

(*a*) The flat rate operated in 1932 with a differential rate of 7d. per 1,000 cu.ft. between ordinary and prepayment consumers.

(*b*) The block rate commenced in 1933. After two years' working the first two block quantities were reversed. This was in effect a concession to agitation that undue burdens were being placed on the "small and poor" consumers.

(*c*) Throughout the scheme gas on the third block is offered at less than half the rate of that of the first block.

* From a Paper to the Manchester District Association of Gas Engineers, Oct. 30

TABLE 2.—Analysis of Total Sales of Gas.

		Total Consumption.	Number of Consumers
1932–42	All Consumers ...	57.4% increase	18.4% increase.
1934–42	Domestic Consumers	12.1% „	12.7% „
1934–42	Ordinary „ ...	11.6% decrease	11.4% decrease.
1934–42	Prepayment „ ...	12.1% increase	12.7% increase.

TABLE 4.—Analysis of Domestic Consumers.

Showing number of consumers paying more or less for gas during the first complete year of Block Rate Scheme as compared with the previous flat rate.

Pays more.	Amount. £ s. d.	Pays less.	Amount £ s. d.
1,289 Ordinary Consumers	294 7 8	948 Ordinary Consumers	830 15 2
1,904 Prepayment „	370 3 4	2,229 Prepayment „	1,407 1 5
	£664 11 0		2,237 16 7

	£ s. d.
Cheaper gas to Ordinary Consumers	536 7 6
Extra discount to Prepayment Consumers ...	1,036 18 1
Total saving	£1,573 5 7

Equivalent to 3.18d. per 1,000 cu.ft.

TABLE 3.—Analysis of Gas Sold.

Percentage of Total Gas Sold year ending March 31.

	1932. %	1936. %	1937. %	1938. %	1939. %	1940. %	1941. %	1942. %
Domestic Consumers—								
Ordinary	31.6	18.9	19.1	17.1	16.2	16.0	13.5	12.8
Prepayment ...	39.2	38.0	36.6	37.9	36.6	35.9	32.8	32.4
Total	70.8	56.9	55.7	55.0	52.8	51.9	46.3	45.2
Non-domestic ... ... Industrial and Commercial ...	...	9.2	9.8	9.3	9.4	9.9	9.4	13.4
Opt. Two-part Tariff and Contracts	15.0	16.6	17.1	17.7	19.2	27.3	33.8	30.8
Power—								
Gas Engine Users ...	6.2	7.7	7.6	7.9	7.3	8.3	8.9	8.1
Central Heating	...	0.6	0.6	0.3	0.3	0.7	1.2	1.7
Street Lighting	8.0	9.0	9.2	9.8	11.0	1.9	0.4	0.8
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(*a*) In 1932 Ordinary Domestic and Non-domestic were not separated.
(*b*) There has been a steady change over from ordinary to prepayment meter.
(*c*) Many non-domestic users have transferred to the Industrial Tariff.

TABLE 5.—Average Price Received per 1,000 cu.ft. or Therm Sold from All Classes of Consumer.

	1932. A.	1932. B.	1936. A.	1936. B.	1937. A.	1937. B.	1938. A.	1938. B.	1939. A.	1939. B.	1940. A.	1940. B.	1941. A.	1941. B.	1942. A.	1942. B.
Domestic—																
Ordinary and Sundry	2/11	7.0														
Ordinary			2/5	5.8	2/5	5.8	2/4.3	5.7	2/4.7	5.7	2/7.3	6.2	2/11.4	7.1	2/11.1	7.0
Prepayment	3/6	8.4	3/1	7.4	2/10.7	6.9	2/9.7	6.7	2/10.4	6.9	3/1.5	7.3	3/6	8.4	3/5.1	8.2
Non-domestic			2/6.4	6.1	2/5.3	5.8	2/5.1	5.8	2/4.7	5.7	2/8.1	6.4	2/10.7	6.9	2/9.7	6.7
Industrial—																
Opt. Four-part Tariff	2/2.7	5.3														
Opt. Two-part Tariff and Contracts			1/8.8	4.2	1/8	4.0	1/7.4	3.9	1/6.4	3.7	1/6.1	3.6	1/7	3.8	1/8.1	4.0
Power—Gas Engines	1/-	2.4	1/1.7	2.7	1/3	3.0	1/2.9	3.0	1/3	3.0	1/4.3	3.3	1/7.2	3.8	1/7.3	3.9
Central Heating			1/5.9	3.6	1/5.5	3.5	1/5.8	3.5	1/6	3.6	1/8.5	4.1	1/9.8	4.4	1/9.9	4.4
Street Lighting	2/0.3	4.8	1/6.3	3.7	1/3.7	3.1	1/3.7	3.1	1/3	3.0	1/4.9	3.4	2/6	6.0	2/1.9	5.2
From all sources	2/10.8	6.9	2/4.7	5.7	2/3.1	5.4	2/2.5	5.3	2/2.1	5.2	2/4.2	5.6	2/6.6	6.1	2/6.8	6.2

Column A = price per 1,000 cu.ft. Column B = pence per therm.

Notes.—(*a*) The equity of the tariff is shown by the figures for 1936 and 1939. A steady decrease in the average price received from *all* classes of consumers except gas engine users. In 1936 a special scale for these users was increased.
(*b*) The highest average price received from all classes during 1932 and 1939 was 2/4.7 per 1,000 cu.ft. (5.7d. per therm), and the lowest price 2/2.1 per 1,000 cu.ft. (5.2d. per therm).

TABLE 6.—Analysis of Sales of Gas to Domestic Consumers.

	Ordinary. A. 1st block.	B. 2nd block.	C. 3rd block.	Total.	Prepayment. A. 1st block.	B. 2nd block.	C. 3rd block.	Total.
Year.								
1931–32—cu.ft.	...	All flat rate	...	59,993,800	...	All flat rate		74,505,800
1932–33—cu.ft.	...	„	...	63,897,000	...	„		77,538,000
1933–34—cu.ft.	8,459,000	14,475,300	20,502,300	43,437,200	...	Flat and block rate		76,862,200
%	19.5	33.3	47.2	100.0				
1934–35—cu.ft.	8,287,600	13,303,900	20,636,300	42,227,800	16,353,400	27,842,400	33,936,000	78,131,800
%	19.6	31.5	48.9	100.0	20.9	35.7	43.4	100.0
1935–36—cu.ft.	14,722,600	6,015,400	23,536,100	44,274,100	27,450,500	19,785,000	37,855,400	85,090,900
%	33.3	13.6	53.1	100.0	30.2	15.7	44.5	100.0
1936–37—cu.ft.	14,137,000	5,624,900	23,964,200	43,726,100	33,023,400	13,364,000	41,608,200	87,995,600
%	32.3	12.9	54.8	100.0	37.5	15.2	47.3	100.0
1937–38—cu.ft.	13,497,200	5,192,100	21,830,000	40,519,300	35,975,600	14,264,100	39,967,200	90,106,900
%	33.3	12.8	53.9	100.0	39.9	15.8	44.3	100.0
1938–39—cu.ft.	13,623,300	5,130,300	21,312,900	40,111,000	37,358,200	14,395,700	39,139,000	90,892,900
%	34.1	12.8	53.1	100.0	41.2	15.7	43.1	100.0
1939–40—cu.ft.	13,061,000	4,927,600	21,932,300	39,920,900	37,124,600	14,108,500	38,821,400	90,052,500
%	32.8	12.3	54.9	100.0	41.2	15.6	43.2	100.0
1940–41—cu.ft.	12,720,700	4,775,500	19,576,100	37,072,300	38,119,700	14,399,800	37,445,000	89,964,500
%	34.3	12.9	52.8	100.0	42.3	16.0	41.7	100.0
1941–42—cu.ft.	12,690,700	4,831,000	20,871,300	38,393,000	38,959,000	14,982,600	42,481,100	96,422,700
%	33.0	12.6	54.4	100.0	40.4	15.5	44.1	100.0

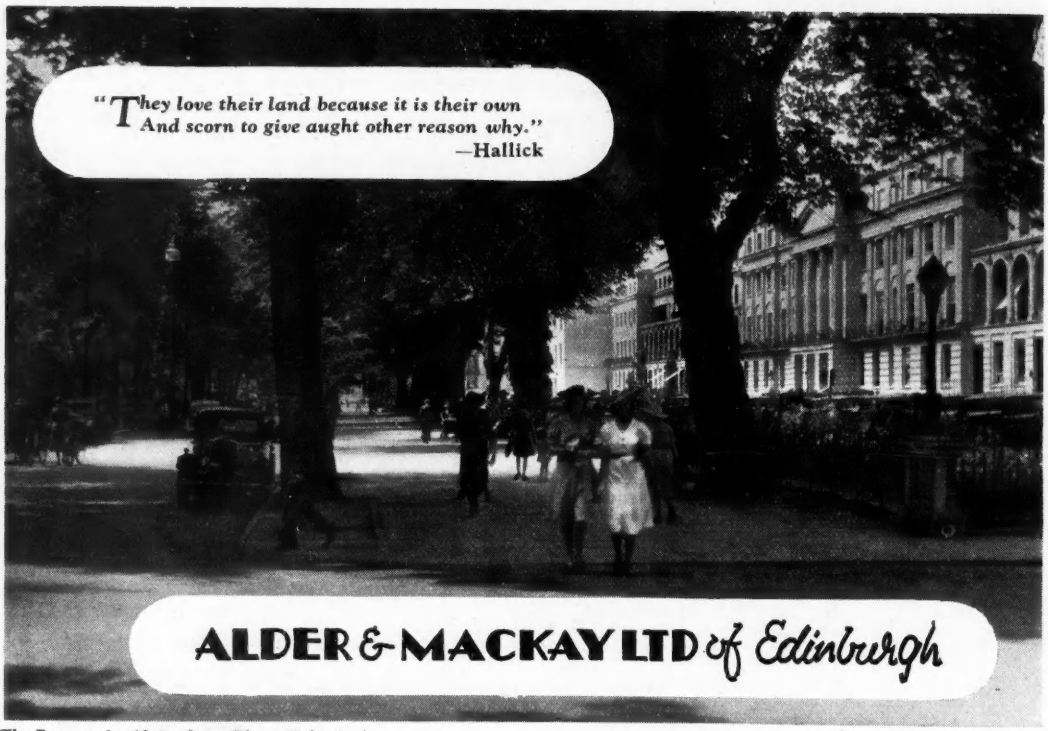
Notes.—(*a*) Gas sold on the Cheap Gas Rate (3rd block) 1934/5 Ordinary Meters 48.9% ; P.P. Meters 43.4%.
1941/2 „ „ 54.4% „ „ 44.1%.
(*b*) Quarterly consumption requirements of the 1st two blocks reversed in 1935/36.

TABLE 7.—Analysis of Annual Consumptions per Domestic Consumer, Showing the Number and Percentage of Consumers in Various Groups of Consumptions.

Annual Consumption. 1,000 cu.ft.	Therms.	Flat Rate. 1932. No.	1932. %	Block Rate. 1934. No.	1934. %	1936. No.	1936. %	1939. No.	1939. %	1941. No.	1941. %
Ordinary—											
0–1	0–5	40	1.5	20	0.9	45	2.0	12	0.6	11	0.6
1–3	5–15	102	3.7	98	4.4	111	4.9	99	5.0	107	5.4
3–5	15–25	181	6.5	135	6.0	152	6.8	149	7.5	151	7.6
5–10	25–50	484	17.5	450	20.1	437	19.4	447	22.4	443	22.4
10–20	50–100	917	33.1	786	35.1	715	31.7	604	30.3	625	31.6
20–30	100–150	500	18.1	409	18.3	369	16.4	350	17.4	340	17.2
30–40	150–200	230	8.4	174	7.8	174	7.7	150	7.5	151	7.6
40–50	200–250	114	4.1	71	3.2	106	4.7	76	3.8	53	2.7
Over 50	Over 250	195	7.1	94	4.2	144	6.4	110	5.5	96	4.9
		2,763	100.0	2,237	100.0	2,253	100.0	1,997	100.0	1,977	100.0
Prepayment—											
0–1	0–5	12	0.3	10	0.2	35	0.8	15	0.3	22	0.4
1–3	5–15	58	1.4	77	1.9	106	2.5	147	2.9	166	3.2
3–5	15–25	149	3.5	162	3.9	164	3.9	257	5.1	305	5.9
5–10	25–50	626	14.8	642	15.6	606	14.4	969	19.3	986	18 8
10–20	50–100	1,878	44.4	1,677	40.5	1,617	38.4	1,816	36.2	1,917	36.9
20–30	100–150	1,005	23.6	1,005	24.2	1,108	26.4	1,162	23.2	1,185	22.8
30–40	150–200	349	8.3	386	9.3	391	9.3	460	9.2	438	8 4
40–50	200–250	114	2.7	137	3.3	120	2.8	129	2.6	129	2.5
Over 50	Over 250	45	1.0	45	1.1	62	1.5	61	1.2	57	1.1
		4,236	100.0	4,141	100.0	4,209	100.0	5,016	100.0	5,205	100.0
All Domestic—											
0–1	0–5	52	0.7	30	0.5	80	1.2	27	0.4	33	0.5
1–3	5–15	160	2.3	175	2.7	217	3.4	246	3.5	273	3.8
3–5	15–25	330	4.7	297	4.7	316	4.9	406	5.8	456	6.4
5–10	25–50	1,110	15.9	1,092	17.1	1,043	16.2	1,416	20.2	1,429	19.8
10–20	50–100	2,795	39.8	2,463	38.6	2,332	36.1	2,420	34.5	2,542	35.4
20–30	100–150	1,505	21.6	1,414	22.2	1,477	22.8	1,512	21.5	1,525	21.2
30–40	150–200	579	8.3	560	8.8	565	8.7	610	8.7	589	8.2
40–50	200–250	228	3.3	208	3.2	226	3.5	205	2.9	182	2.6
Over 50	Over 250	240	3.4	139	2.2	206	3.2	171	2.5	153	2.1
		6,999	100.0	6,378	100.0	6,462	100.0	7,013	100.0	7,182	100.0

Some of the larger consumers (over 40,000 cu.ft.) in 1932 are now classed as Non-domestic.

(*To be continued*)


"They love their land because it is their own
And scorn to give aught other reason why."
—Hallick
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The Promenade, Cheltenham (Photo: Valentine).

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Gas Products Prices

The London Market Nov. 2.

The only item of interest in connexion with the London Coal Tar Products market is that fair quantities of Pitch are being sold on the basis of 45s. per ton naked at Makers' Works. Otherwise no change.

The Provinces Nov. 2.

The average prices of gas-works products during the week were: Pitch and Crude Tar,* Toluole, naked, North, 90's, 1s. 10d., pure, 2s. 5d. (controlled by the Control of Toluene No. 2 Order, July 3, 1941, which fixes the maximum price at which this material may be sold). Coal tar, crude naphtha, in bulk, North, 1s. to 1s. 4d. according to quality. Solvent naphtha, naked, North, 2s. 2d. to 2s. 6d. Heavy naphtha, North, 1s. 10d. to 1s. 11d. Carbolic acid, 60's, controlled by the Coal Tar Acids Prices (Inland) Order, 1942, operative from May 1. Naphthalene, controlled by the Naphthalene prices (Inland) Order, 1942, dated April 15, 1942, and operative from May 1, 1942, £19 to £19 10s.—bags free. Anthracene, controlled by the Anthracene Prices (Inland) Order, 1942, operative from May 1. Filtered heavy oil (min. gr. 1,080), 7½d. to 8d. Creosote oil has been generally controlled as to direction and price for some time past. Current value—fuel grades 5d. to 5¼d; timber preservation and other purposes 4¾d. to 6d. These prices apply as from May 13.

* In regard to pitch and crude tar prices we would ask readers to refer to the editorial note on p. 396 of the "JOURNAL" for Sept. 10, 1941.

Tar Products in Scotland Oct. 31.

No alterations have taken place during the week. Refined tar controlled. Value is 4½d. per gallon *ex* Works, naked. Creosote oil: Specification oil, 6¾d. to 7d.; low gravity, 7¼d. to 7½d.; neutral oil, 6¾d. to 7d. per gallon; all *ex* Works in bulk. Refined Cresylic acid is available in small quantities at 3s. 6d. to 4s. 6d. per gallon *ex* Works, naked, according to quality. Crude naphtha: 6¼d. to 7d. Solvent naphtha: 90/160 grade, 2s. 3d. to 2s. 6d. and 90/190 Heavy naphtha: 1s. 9d. to 2s. per gallon. Pyridine: 90/160 grade, 13s., and 90/140 grade, 15s. per gallon.

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FULL particulars of these spaces can be obtained on application to the Publishers. They are designed principally for the use of the firms whose display advertisements cannot be included owing to paper rationing.

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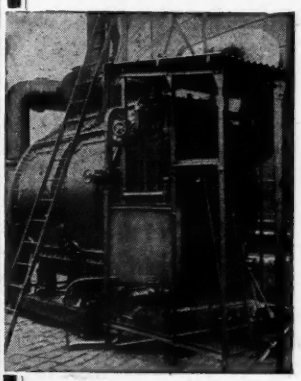

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GAS STOCKS AND SHARES

Stock Markets generally remained firm last week, a feature being the strength of industrial shares, particularly in the textile group. Gas stocks and shares continued in good demand, especially the ordinary issues of the three Metropolitan companies, all of which rose again last week. Compared with a month ago Commercial stock has gained 5 points, Gas Light units are 2s. 9d. higher and South Metropolitan 9 points up. Imperial Continental has also been active and closed 3 points higher than a week ago. It will be noticed that three additions have been made to the Official List by the inclusion of £388,938 deferred stock of the Associated Gas and Water Undertakings, to which reference was made in the issue of October 14, and Primitiva Holdings ordinary and 6% redeemable cumulative preference stock which have now been re-transferred to the gas section.

The following quotations were changed during the week:

OFFICIAL LIST

		Oct. 26
Colombo 7 p.c. Pref. (x.d.)	19/—21/-	
Commercial Ord.	40—45	+3
Gas Light Units	16/—17/-	+1/-
Ditto 3½ p.c. max.	57—62	+2
Ditto 4 p.c. Pref.	75—80	+3
Ditto 3½ p.c. Pref.	77—82	+2
Ditto 5 p.c. Red. Deb.	105—108	+½
Imperial Continental	70—75	+3
Montevideo	83—88	+1
South Metropolitan Ord.	66—71	+8
Wandsworth 4 p.c. Deb.	95—100	+5

SUPPLEMENTARY LIST

Uxbridge 5 p.c. Deb.	108—113	+1

PROVINCIAL EXCHANGES

		+-/3d.
Newcastle Units	19/6—20/-	
Sheffield Cons.	129—132	+1

Quotations on the London and Provincial Stock Exchanges

OFFICIAL LIST

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Oct. 29.
1,767,439	Sept. 7	5	5	Alliance & Dublin Ord.	95—100
374,000	June 29	4	4	Do. 4 p.c. Deb.	100—105
583,407	May 11	5	5	Asscd. Gas & Water U'd'ts Ord.	17/6—18/6
388,938	,,	—	—	Do. Deferred	17/—18/-
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	17/—18/-
535,545	,,	4	4	Do. 4 p.c. Red. Cum Pref.	17/—18/-
341,966	,,	4	4	Do. 4 p.c. Irred. Cum. Pref.	13/6—14/6
561,370	Aug. 24	7	7	Barnet Ord. 7 p.c.	133—138
300,000	Oct. 5	1/9⅝	1/4⅜	Bombay, Ltd.	19/9—20/9
690,407	Aug. 17	7	7	Bournemouth 7 p.c.max.	135—140
362,025	June 15	4	4	Do. 4 p.c. Deb.	98—103
659,955	Sept. 7	2½	2½	Brighton, &c., 5 p.c. Con.	72—77
855,000	,, 28	6	6	Brit. Gas Light Ord.	75—80*
545,000	June 29	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	105—115
120,000	June 15	4	4	Do. 4 p.c. Red. Deb.	80—85
10,000	Nov. 6 '33	6	4	Cape Town, Ltd., 4½ p.c. Cu. Pf.	1¼—2¼
626,860	July 13	6	6	Cardiff Con. Ord.	101—106
24,500	Oct. 26	7	7	Colombo 7 p.c. Pref.	19/—21/-*
764,169	Sept. 28	-/9.56	-/9.56	Colonial Gas Assn. Ltd. Ord.	¼—½*
400,000	,,	1/3.298	1/3.298	Do 8 p.c. Pref.	¼—½*
1,748,935	July 22 '40	2	3	Commercial Ord.	40—45
620,000	June 8	3	3	Do. 3 p.c. Deb.	58—63
286,344	Aug. 17	5	5	Do. 5 p.c. Deb.	95—100
807,560	,, 24	6	6	Croydon sliding scale	108—113
644,590	,,	5	5	Do. max. div.	85—90
620,385	June 29	5	5	Do. 5 p.c. Perp. Deb.	109—114
179,500	Aug. 17	5	5	East Surrey 'B,' 5 p.c.	80—85
176,461	June 29	5	5	Do. 5 p.c. Deb. (Irred.)	107—112
250,000	July 13	4	6	Gas Consolidation Ord. 'B'	15/—17/-
250,000	May 11	4	4	Do. 4 p.c. Red. Cum. Pref.	14/6—16/6
19,107,811	July 29 '40	3¾	4½	Gas Light & Coke Ord.	16/—17/-σ
2,600,000	,,	3¾	3¾	Do. 3½ p.c. max.	57—62
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref.	75—80
2,993,000	July 8 '40	3¾	3¾	Do. 3½ p.c. Red. Pref.	72—77
8,602,497	June 1	3	3	Do. 3 p.c. Con. Deb.	77—82
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb.	105—108
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb.	103—107
700,000	Sept. 14	3½	3½	Do. 3½ Red. Deb.	92—95
5,600,000	May 13 '40	4	8	Imperial Continental Cap.	70—75
43,820	July 27	3½	3½	Do. 3½ p.c. Red. Deb.	90—95
231,978	Aug. 24	5	5	M.S. Utility 'C' Cons.	75—80
918,657	,,	4	4	4 p.c. Cons. Pref.	79—84
675,000	May 4	†4	†4	Montevideo, Ltd.	83—88
300,000	April 27	9	7	Oriental, Ltd.	80—90
368,537	June 15	3½	2½†	Plymouth & Stonehouse 5 p.c.	65—70
621,667	Aug. 17	7½	7½	Portsmouth & Gosport Cons.	96—101
2,381,363	May 18	—	4†	Primitiva Holdings, Ltd. Ord.	11/—13/-
233,900	June 15	3½	3½	Do. 6½ p.c. Red. Cum. Pref.	96—101
648,999	Sept. 7	1/1½	1/1½	Severn Val. Gas Cor. Ld. Ord.	18/—20/-
597,972	,,	4½	4½	Do. 4½ p.c. Cum. Pref.	16/6—18/6
2,528,714	Aug. 24	1/-	7½	South East'n Gas Cn. Ld. Ord.	15/6—16/6
1,000,000	,,	-/10½	-/10½	Do. 4½ p.c. Red. Cum. Pref.	16/—18/-
1,068,869	,,	4	4	Do 4 p.c. Irred. Cum. Pref.	13/6—15/6
6,709,895	Aug. 5 '40	4	4	South Met. Ord.	66—71
1,135,812	,,	6	6	Do. 6 p.c. Irred. Pref.	82—87
850,000	,,	4	4	Do. 4 p.c. Irred. Pref.	62—67
1,895,445	June 29	3	3	Do. 3 p.c. Perp. Deb.	76—81
1,000,000	July 13	5	5	Do. 5 p.c. Red. Deb.	100—105
1,543,795	Aug. 4	4	4	South Suburban Ord. 5 p.c.	79—84
512,825	,,	5	5	Do. 5 p.c. Perp. Pref.	97—102
500,000	,,	4	4	Do. 4 p.c. Perp. Pref.	77—82
250,000	,,	3½	3½	Do. 3½ p.c. Red. Pref.	90—95
888,587	June 15	3	5	Do. 5 p.c. Perp. Deb.	109—114
750,541	Aug. 17	2	6	Southampton Ord.	72—77
350,000	,,	5½	5½	Swansea 5½ p.c. Red. Pref.	95—100
1,076,495	,,	5	5	Tottenham & District Ord.	88—93
338,555	,,	5	5	Do. 5 p.c. Pref.	95—100
453,380	June 8	4	4	Do. 4 p.c. Perp. Deb.	92—97
1,247,505	,, 29	4	6	U. Kingdom Gas Cor. Ord.	16/6—17/6
1,085,952	May 18	4½	4½	Do. 4½ p.c. 1st Cum. Pref.	18/—20/-
772,709	,,	4	4	Do. 4 p.c. 1st Red. Cum.Pref.	16/—18/-
745,263	June 22	4½	4½	Do. 4½ p.c. 2nd Non.Cum. Pf.	14/—16/-
1,200,000	Sept. 14	3½	3½	Do. 3½ p.c. Red. Deb.	90—95
380,606	Aug. 24	6⅝	6⅝	Uxbridge, &c., 5 p.c.	102—107
1,371,138	,, 10	4	4	Wandsworth Consolidated	82—87
2,525,768	,,	4	4	Do. 4 p.c. Pref.	79—84
1,343,964	June 15	5	5	Do. 5 p.c. Deb.	109—114
383,745	,,	4	4	Do. 4 p.c. Deb.	95—100
588,342	Aug. 10	5	5	Watford & St. Albans Ord.	98—103
300,000	June 8	3½	3½	Do. 3½ p.c. Red. Deb.	84—89

SUPPLEMENTARY LIST

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations Oct. 29.
351,685	June 15	5	5	Brighton, &c., 5 p.c. Perp. Deb.	107—112
415,250	,,	4	4	Bristol Gas Co., 4 p.c. New Deb.	98—103
140,205	Aug. 4	7	7	Cambridge, &c., 7 p.c. Cons. 'B'	130—140
295,932	Aug. 17	5	5	Cheltenham, 5 p.c. Cons.Ord.	95—100
42,500	June 15	4	4	Do. 4 p.c. Perp. Deb.	95—100
150,000	Aug. 24	4	4	Croydon Gas, 4 p.c. Pref. (Irr.)	78—83
130,000	June 29	4	4	Do. 4 p.c. Deb.	97—102
146,700	Aug. 17	5½	5½	East Surrey, 5½ p.c. Pref. 'A'	95—100
53,220	,, 9	6	6	Do. 6 p.c. Cum. Pref.	115—120
...	Aug. 19 '40	6	4	Eastbourne, 'B' 3½ p.c.	37—42
239,135	July 13	5	5	Gas Consolidation 'A' Ord. (£1)	15-/—17/-
156,600	Aug. 17	5	5	Hampton C't, 5 p.c. Cons. Ord.	95—100
18,000	Dec. 29'41	3½	3½	Malta & Med'n., 7 p.c. 1st Pref.	30—40
10,845	June 30'41	3½	3½	Do. 7½ p.c. 2nd Pref.	30—40
50,000	Aug. 24	£5 4 6	£5 4 6	Mid. South. Util., 'A' Cons. 5 p.c.	70—80
65,000	,,	5	5	North Middlesex, 5 p.c. Pref.	90—95
70,000	Sept. 14	5	5	Plymouth & Stone., 5 p.c. Deb.	103—108
76,501	June 29	4	4	Reading, 4 p.c. Perp. Deb.	90—95
74,777	Sept. 30	4	4	Romford, 4 p.c. Debs. (Reg.)	90—95*
21,000	June 15	5	5	Slough, 5 p.c. Perp. Deb.	108—113
211,740	,,	5	5	Southampton, 5 p.c. Red. Deb.	95—100
363,575	July 1	5	5	Tottenham, 5 p.c. Reg. Red. Mt.	99—102
202,019	Aug. 24	7⅛	7⅛	Tunbridge Wells, 4 p.c. Scale	119—124
135,257	June 15	5	5	Uxbridge &c., 5 p.c. Perp. Deb.	108—113

PROVINCIAL EXCHANGES

					Quotations Oct. 23.
804,948	Mar. 2	5	5	Bath Cons.	97—100
122,577	Aug. 17	6	5	Blyth 5 p.c. Ord.	100—105
1,667,250	July 13	5	5	Bristol, 5 p.c. max.	107—109
120,420	June 15	4	4	Do. 1st 4 p.c. Deb.	101—103
415,250	,,	4	4	Do. 2nd 4 p.c. Deb.	99—101
328,790	,,	5	5	Do. 5 p.c. Deb.	113—118
157,150	Aug. 4	6½	5	Chester 5 p.c. Ord.	96—99
92,500	June 15	4	4	Do. 4 p.c. Pref.	79—81
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	78—82
41,890	,,	4	4	Do. 4 p.c. Red. Deb.	98—100
542,270	Aug. 17	9	6	Derby Cons.	115—120
55,000	June 15	4	4	Do. 4 p.c. Deb.	95—100
10,000	Aug. 10	10	10	Great Grimsby 'A' Ord.	155—165
6,500	,,	10	10	Do. 'B' Ord.	155—165
79,000	,,	10	10	Do. 'C' Ord.	145—155
732,000	Aug. 31	4	4	Hartlepool G. & W. Cn. & New	71—73
2,167,410	,, 10	6	5	Liverpool 5 p.c. Ord.	98½—100½
245,500	June 15	5	5	Do. 5 p.c. Red. Pref.	100—102
306,083	July 15	4	4	Do. 4 p.c. Deb.	98—100
20,000	June 22	5	5	Long Eaton 5 p.c. Pref.	9—11
80,000	,,	5	5	Do. 5 p.c. Deb.	95—100
2,430,267	Aug. 4	5½	5	Newcastle and Gateshead Con.	19/6—20/-σ
682,856	,,	4	4	Do. 4 p.c. Pref.	93—94
776,706	June 29	3½	3½	Do. 3½ p.c. Deb.	89½—90½
277,285	May 4	5	5	Do. 5 p.c. Deb. '43	99—101
274,000	March 17	5	5	Newport (Mon.) Ord.	86—89
13,200	Sept. 16	8⅝	7	Pontyp'l Gas & W. 10 p.c. 'A'	11½—12½
13,600	,,	6	5	Do. 7 p.c. 'B'	9½—10½
40,000	,,	5	6	Do. 7 p.c. 'C'	9½—10½
106,280	Aug. 10	10	10	Preston 'A' 10 p.c.	150—160
188,219	,,	7	7	Do. 'B' 7 p.c.	109—119
1,806,339	Aug. 24	6½	6½	Sheffield Cons.	129—132
95,000	July 6	4	4	Do. 4 p.c. Deb.	98—100
332,351	Sept. 21	6	6	Sunderland 6 p.c. max.	111½—112½
192,150	Aug. 10	5	5	Weston-super-Mare Cons.	95—100
64,338	June 29	4	4	Do. 4 p.c. Deb.	84—89
33,340	,,	7½	7½	Do. 7½ p.c. Deb.	142—147

σ—The quotation is per £1 of Stock. * Ex. div. † Paid free of income-tax. †For year.

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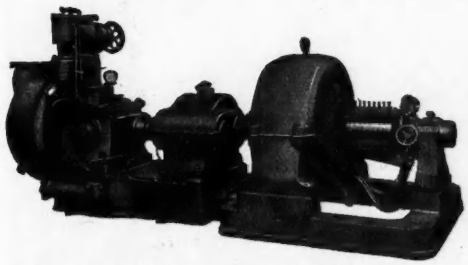

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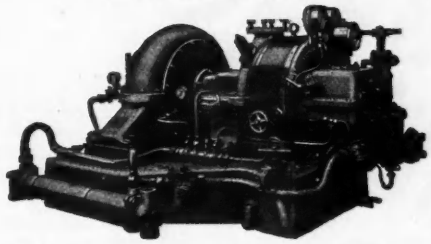

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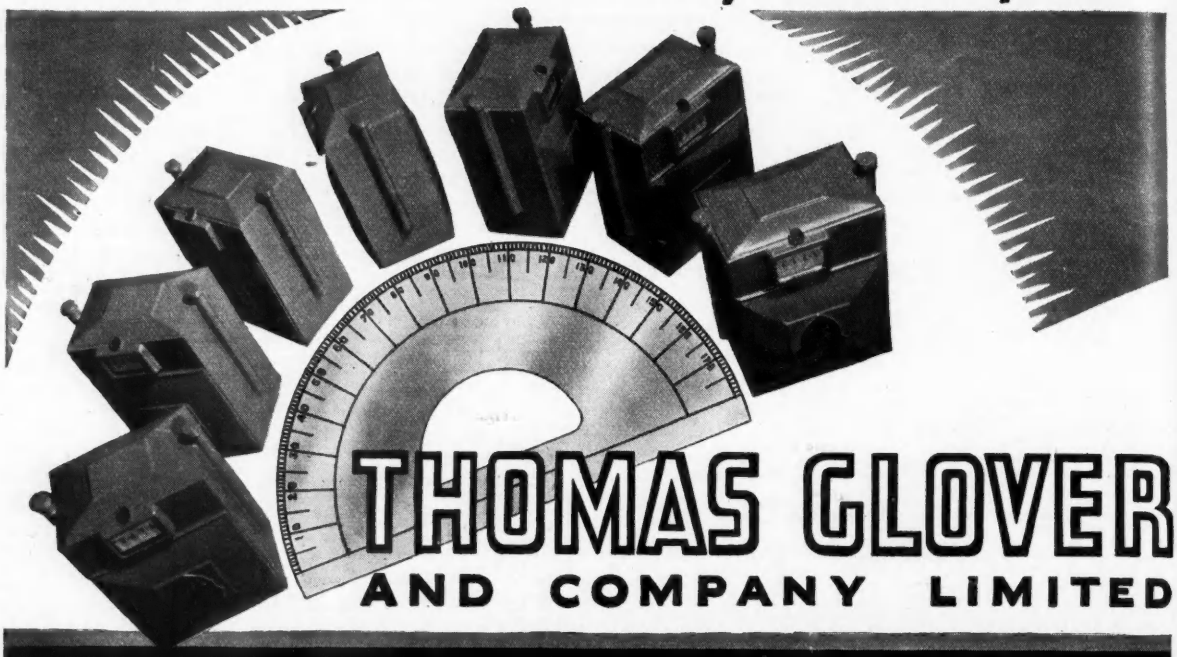

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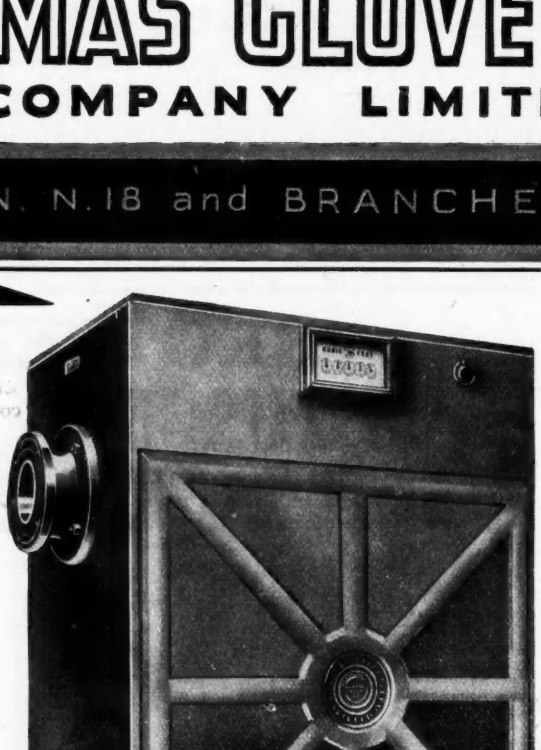

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